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ABSTRACT

This report presents a model of collaborative effort that established a network of 15 university-based and 2 non-university based Centers for Environmental Education (CEE) in the Tennessee River watershed region. The report begins by establishing definitions for a Center for Environmental Education and a network system, both of which are components of the model. Next, the history of this Tennessee Valley Authority (TVA)-sponsored network is provided. This is followed by seven guidelines for new environmental education center development or evaluation of established center programs: (1) the host institution for the center must include service as an integral part of its philosophy; (2) the center should have a strong base of support; (3) the center staff should include a director who has the authority to develop the center, as well as a full-time assistant director who is responsible for managing the programs; (4) a strong network of communication must be established and maintained; (5) specific attainable goals for the center should be established; (6) functions of the center should be identified and ranked according to degree of emphasis given to each; and (7) an advisory committee should be formed to help guide the center's development. Each guideline is followed by the principle upon which it is based and ways that it can be applied. Survey questions administered to TVA-sponsored centers and interview questions administered to center directors are included in a methods section. Appendices provide a map of the Tennessee River Watershed and location of TVA-sponsored CEE, and a listing of the TVA-sponsored CEE. (Contains 8 references.) (MCO)

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Centers for Environmental Education

Guidelines for Success

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Introduction

At no time in history have so many people been concerned about the future of the earth's support systems and the roles that individuals can play in protecting those systems. As the end of the Twentieth Century draws near, the global community of those concerned individuals is faced with a complex set of environmental challenges. These challenges involve not only the outward environment within which we live but also the effect of the environment on our attitudes and inner selves. As people search for solutions, they turn toward educational institutions for information and guidance.

Just as the environment is an integral part of our lives, so education about the environment must be an integral part of the learning process. This process begins in the pre-school years, is formalized during the school years, and continues as a life-long process. Thus, environmental education cannot be the exclusive responsibility of the schools. Universities, governmental agencies, schools, and the private sector must form partnerships to promote the development of better informed citizens who are asked to make decisions that will impact the lives of future generations. Such partnerships, through collaboration, can provide comprehensive approaches to environmental education.

An instructive model of collaborative effort is the network of environmental education centers established under the leadership of the Tennessee Valley Authority (TVA). This networking has contributed to the success of the individual centers, as it provides opportunities to tap the resources and strengths of sister organizations. There are two essential components to this regional effort: the individual centers for environmental education and the joining together of these centers in a cooperative network.

What is a center for environmental education?

A center is the point around which something revolves and a place of concentrated activity or influence. Centers for environmental education are the places to which people turn for information and guidance about a broad

range of environmental concerns. Information about local, regional, national, and international issues is funneled into the centers, organized, evaluated, synthesized, and disseminated. The host institution for each center, as well as the operation of the center, can vary from one center to another. Additionally, the primary focus for a center, its target audience, and the scope of activity can be developed according to its own needs.

Centers in the TVA-sponsored network range from university-based centers with an emphasis on preservice teacher training to non-university-based centers that have strong environmental programs for school children. These centers have other contrasting characteristics: the level of support given to each center by its host institution ranges from very little to a great deal of support; the number of staff ranges from one professor who also has a full course load to a large staff of full-time and part-time personnel; and facilities range from only a desk to a complex of offices that include a large materials resource center. However, all the TVA-sponsored centers focus primarily on four functional areas: (1) teacher and leadership training, (2) program development (3) regional services, and (4) research. These four functions serve as the framework for planning and for sharing information within the network. Based on its own resources and areas of expertise, each center in this network determines which of these functions to emphasize.

What is a network?

Lipmark and Stamps (1986) described a network as a web of free-standing participants connected through shared interests, generally composed of self-reliant people and independent individuals and groups. Networking is simply people connecting with people, sharing their resources, expertise, and ideas. Networking offers a horizontal, cross-cultural connection not possible in the hierarchy of a bureaucracy. In examining cultural change, the shift from the traditional hierarchal connection to horizontal connections is seen as a major trend of our time (Naisbitt, 1982). Thus, it is noteworthy that the Tennessee Valley Authority, a unique government agency that is operated like a corporation, created the network approach to environmental education. As a model, this network of successful programs has been the focus of national and international attention (Hodges, 1985).

How was the TVA-sponsored network formed?

The Tennessee Valley Authority is a regional agency, serving an area of the southeastern United States that is roughly equivalent to the drainage of the Tennessee River (see Appendix A). It lies in parts of seven states, including southern and western Kentucky where the network of centers began (Hodges, n.d.). Initiated through the efforts of TVA and Murray State University, the West Kentucky Environmental Education Consortium (WKEEC) of eleven school systems was established in 1976.

As members of the WKEEC, the school systems committed their resources to the development of a regional environmental education program at the University. Through its combined effort, the Consortium was able to implement programs that would not have been feasible with a single school system. Also, the funding potential for each school was enhanced through membership in the Consortium when matching funds were requested for grant applications. Both of these factors increased the visibility of environmental education in WKEEC member schools. More and more teachers expressed interest in attending environmental education workshops and acquiring materials.

In addition to expanding environmental education in the schools, the impact of the Consortium on Murray State University was significant. Greater demands for teacher training, consultant services, and dissemination of materials prompted the University to develop the Center for Environmental Education. The functions of the Center included teacher training, program development, regional services, and research. The Consortium has remained an integral part of the Center, providing financial support for its operation.

As the success of the Center at Murray State University became evident, TVA entered into similar arrangements with other universities in the Tennessee River Valley. In 1983 the Center for Mathematics, Science, and Environmental Education was established at Western Kentucky University in Bowling Green. "At the outset of the Center's development, an ongoing, healthy relationship already existed between the schools and the University" (Crumb and Martin, 1989). This relationship was in the form of an active consortium consisting of Western Kentucky University and 28 rural school districts in Kentucky, joined together through the Professional Development

Center Network (PDCN). The key to growth of this Center has been the close working relationship maintained with the PDCN and TVA.

Regional program development at Western Kentucky University has been adjusted in direct response to an annual needs assessment conducted through the PDCN. To meet the needs of the service region, the Center has conducted in-service training for more than 1800 teachers; publishes a newsletter dissiminated to the educational community, businesses, and agencies; and uses the campus radio and cable television channel to enhance communication. During the past eight years the Center, under contract with TVA, has successfully coordinated the development of curriculum materials. For example, the guide *Waste: A Hidden Resource* currently is being distributed nationwide by Keep America Beautiful, Inc.

In contrast to the centers established at universities, Cedar Creek Learning Center is based at a nonformal residential facility in Greenville, Tennessee. This member of the TVA-sponsored centers has emerged as an outstanding example of the way in which environmental education centers network with the public schools. In addition to conducting in-service training for the teachers, the staff works directly with the school children who come to the Center. The program also takes advantage of an old power plant facility to use as the focal point for energy education.

In addition to conducting nonformal residential programs, this Center has been highly visible in the writing, field-testing, and distribution of curriculum materials addressing the issues of energy and groundwater. These books are distributed through workshops in the seven-state region of the TVA-sponsored network of centers.

Currently, the network includes 15 university-based centers and two non-university-based centers (see Appendix B). Representatives from these centers meet two to four times a year, plan and conduct cooperative projects, and exchange expertise and resources. Through this process, the network serves as a means for the identification of environmental education needs and a mechanism for addressing these needs (Crumb and Martin, 1989).

The successful TVA-sponsored regional network of centers for environmental education is being used by the Alliance for Environmental Education as a model for the National Network for Environmental Education. (Hodges, n.d.). Certain patterns have emerged that have been instrumental in the successes of the TVA-sponsored centers. The purpose of this guide is to identify those factors that contribute to the success of a center. It is hoped that these guidelines will be useful to those who are creating new centers, as well as to those who are evaluating established centers.

Methods

In an effort to produce practical guidelines for use by new environmental education centers that are seeking direction for development, as well as by established centers that are interested in evaluating their programs, the authors have used information gathered from several sources: a survey of TVA-sponsored center directors conducted by Wilson and Kirkland in 1987; interviews with center directors four years later, and a paper written as a result of successful networking by one of the centers (Martin, 1989).

Survey of TVA-sponsored centers

In 1987, a questionnaire was sent to all the directors of centers in the TVA-sponsored network. Written responses to the survey were received from the center directors at Bear Creek Environmental Education Center in Alabama, Cedar Creek Learning Center in Tennessee, Jackson State University in Mississippi, Memphis State University in Tennessee, Middle Tennessee State University, Murray State University in Kentucky, Tennessee Wesleyan University, University of Alabama in Huntsville, University of Tennessee-Chattanooga, University of Tennessee-Knoxville, Western Carolina University, in North Carolina, and Western Kentucky University. Participants responded to the following questions:

1. If your center was being established all over again, what would be the five most important considerations--in order of priority?

2. Which of the four functions--teacher training, program development, regional service, and research--is your most immediate concern and why? Which is most important in the long run and why?

3. What are the top three specific processes, programs, etc., your center is involved with?

4. What advantages do you see in creating a center based upon multiple funding (in other words, funding from within and outside the university)? What disadvantages?

5. List ten educational aids, books, games, etc., ideal in establishing a "typical" resource center.

6. How effective do you perceive your newsletter to be in accomplishing its purpose?

7. How do you staff your center? Describe briefly the roles of your staff. How do you recruit your staff?

8. In what way can TVA (or any outside agency) be supportive of your program?

9. Identify any limitations (other than funding) your program is faced with. What are changes you would like to make in past operations? Share future endeavors/aspirations?

10. After TVA funding has terminated, how can your center become self-sufficient?

Interviews with center directors

In 1991, a sample of directors and co-directors from seven centers in the TVA-sponsored network were interviewed by the authors. The following institutions were represented in the survey: Cedar Creek Learning Center, Murray State University, North Georgia College, University of Alabama-Huntsville, University of North Alabama, University of Tennessee-Knoxville, and Western Carolina University. The following questions were posed:

1. If you were to start your center again, what would be your top three priorities?

2. Which of the four center functions (teacher training, program development and distribution, regional service, and research) does your center emphasize now? Five years from now would your answer be the same?

3. How do you staff your center in terms of people and the percentage of time they devote to your center? With the staff you have, at what level is your center able to perform the center's functions?

4. If you network with schools, what is the process you use to communicate with them?

5. How many years has your center been operating? During this time how significant has funding from TVA been to your center programs? Currently, what percentage of your center's total funding comes from TVA? If funding from TVA were to be discontinued next year, what impact would that have on your center and it's programs, and why?

In addition to these sources, the authors have drawn upon a combined 38 years of experience in directing and coordinating two centers for environmental education, working in other settings for environmental education, and networking with schools, universities, and public agencies.

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Guidelines

The following set of seven guidelines are intended to provide direction for environmental education centers in developing successful programs. Each guideline is followed by (1) the principle on which it is based and (2) ways in which it can be applied.

1. The host institution for the center must include service as an integral part of its philosophy.

Service must be a significant focus for environmental education centers. A host institution that recognizes the importance of service to schools and the community will support the center so it can be a visible regional entity.

Host institutions that value service to schools and the community tend to provide more support than those who do not. The institution can demonstrate support of the center and its programs in several ways:

a. By providing housing for the center.

b. By providing maintenance of those facilities.

c. By providing salary for at least part of the staff.

d. By making the center an integral part of the administrative structure.

2. The center should have a strong base of support.

Support from a diverse group of funding sources and a broad base of cooperative alignments produces a stable program and enhances the posture of the host institution.

a. It is essential for centers to receive initial funding from those who will benefit from the establishment of such a center. However, resources for funding can diminish. Centers that develop a diverse source of funding ensure the continuation and expansion of their programs. Networking attracts funds from agencies that seek to benefit a large population. Sources for financial support include the following:

   (1) Federal, state, and regional government agencies.

   (2) Private foundations and national organizations.

   (3) Businesses, industry, and local school systems.

b. Networking with groups of people through cooperative arrangements multiplies the effectiveness of a center's program. Collaborative efforts should include groups on all levels:

   (1) Faculty, colleagues, and personnel in one's own institution.

   (2) School teachers and administrators in the service region.

   (3) Members of local, regional, and national associations who are interested in environmental education.

   (4) Representatives from businesses, trades, media, and government agencies that are based locally--and, depending on the scope of your program--regionally, nationally, or internationally.

   (5) Members of a consortium of centers for environmental education.

3. **The center staff should include a director who has the authority to develop the center, as well as a full-time assistant director who is responsible for managing the programs.**

The level of success achieved by the center is directly related to the amount of time dedicated to the center's development by a director and a coordinator, as well as the availability of other support staff.

a. A center can operate with a staff of any size. To manage the activity of a "full-service" center, staff should include the following:

   (1) A director who dedicates at least half of his or her time to center development, which includes procuring funds; establishing goals, structure, standards, and functions; and maintaining networks of related consortia.

   (2) A full-time assistant director who coordinates, facilitates, and directs the functions of the center.

   (3) An administrative assistant who supervises office staff, handles data entry, correspondence, record keeping and bookkeeping.

   (4) Volunteers who provide support for community contact, center publicity, and project promotion and who serve as resources for center functions.

b. Additional positions that provide valuable support are available in the university-based centers:

   (1) Graduate assistants and interns who are given responsibility for special projects.

   (2) University student workers who assist the staff in center operation.

Note: The optimal situation is for essential positions to be funded by the host institution. However, the size of a staff can be increased through funding acquired for special projects.

4. A strong network of communication must be established and maintained.

The process of building rapport within the institution and within the region being served is crucial to the success of the center and to its role as a partner in the network system.

a. Methods of communication can be divided into three major categories: direct contact, indirect contact, and contact through a liaison.

   (1) Direct contact is an effective means of maintaining rapport through regularly held meetings, formal and informal on-site visits (especially in the schools), phone calls, electronic mail, and telecopier transmittal.

   (2) Indirect contact is achieved through newsletters, bulletin boards, mailings, media announcements and interviews, exhibits, electronic communications, and brochures.

   (3) Using designated representatives from schools and organizations to serve as a liaison between their constituents and the center has two advantages: personal contact is maintained and the probability of information being disseminated to the intended recipients is greater.

b. Evaluating the effectiveness of the center's methods of communication should be an ongoing process.

   (1) Determine the frequency of each method of communication (e.g., how often the bulletin board should be changed or how many newsletters should be published each year).

   (2) Determine the appropriate target population for each method of communication.

5. Specific attainable goals for the center should be established.

A clear sense of direction, established in agreement with the host institution and sponsors of the program, contributes to the center's growth, encourages support for the center's programs, and avoids conflicts in purpose.

It is recommended that the literature in environmental education be examined to find goals that have been established in centers for environmental education. A plan for establishing and achieving the center's goals should include the following steps:

a. Conduct a needs assessment for the population that the center intends to serve.

b. Inventory the financial, material, and human resources available to meet the needs that will be addressed.

c. Determine priorities for programs in respect to primary and secondary goals established.

d. Assign responsibilities for each major program and activity to achieve the goals.

e. Develop a time line to ensure the stepwise movement toward attainment of goals.

f. Plan periodic evaluation of programs and movement toward achievement of goals.

g. Identify individuals, organizations, agencies, and institutions with whom networking would be advantageous.

6. Functions of the center should be identified and ranked according to degree of emphasis given to each.

Organizing activities around basic functions provides a framework for planning.

Emphasis given to functions of the center at any given time is determined by needs assessed, resources available, expertise of the staff, and the role of the center as perceived by the host institution:

a. *Teacher training* in curriculum and instruction is provided through workshops, in-service programs, and preservice training that integrates environmental education into existing courses or through the development of new courses.

b. *Program development* is accomplished in cooperation with area teachers to develop and distribute curricula, supplementary guides, audio/visual presentations, and computer software programs.

c. *Regional service* is provided to citizens in the service area through technical assistance, presentations, and material resources.

d. *Research* conducted includes, but is not limited to, the field-testing of new educational products, evaluation of program impacts, and survey of students and teachers.

7. An advisory committee should be formed to help guide the center's development.

A broad-based, interdisciplinary advisory committee is integral to the success of the center's program.

The population represented by an advisory committee varies according to the needs of the center, but it can help move the center toward its goal by providing the following:

a. Guidance in assessing the needs.

b. Insight into the most appropriate method for reaching a particular audience.

c. Expertise in issues addressed.

d. Community perspective of the center's role and the issues addressed.

e. Support for carrying out the center's program and procurement of additional resources.

f. Evaluation of effectiveness of program.

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Appendices

A. The Tennessee River Watershed and the TVA-Sponsored Centers for Environmental Education

B. Listing of TVA-Sponsored Centers for Environmental Education, 1991

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The Tennessee River Watershed and the TVA-Sponsored Centers for Environmental Education

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Listing of TVA-Sponsored centers for Environmental Education, 1991

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